

Title (en)  
LIQUID-CRYSTAL DISPLAY ELEMENT

Title (de)  
FLÜSSIGKRISTALLANZEIGEELEMENT

Title (fr)  
ÉLÉMENT D’AFFICHAGE À CRISTAUX LIQUIDES

Publication  
**EP 3070520 B1 20190227 (EN)**

Application  
**EP 14861936 A 20141104**

Priority  
• JP 2013233958 A 20131112  
• JP 2014079196 W 20141104

Abstract (en)  
[origin: EP3070520A1] Provided is a liquid crystal display device including first and second opposing substrates, a liquid crystal layer containing a liquid crystal composition between the first and second substrates, a plurality of gate lines and data lines arranged in a matrix on the first substrate, thin-film transistors disposed at intersections of the gate lines and the data lines, and pixel electrodes that are driven by the transistors and that are made of a transparent conductive material. Each thin-film transistor includes a gate electrode, an oxide semiconductor layer disposed over the gate electrode with an insulating layer therebetween, and source and drain electrodes electrically connected to the oxide semiconductor layer. The liquid crystal composition contains at least one compound selected from the group consisting of compounds represented by general formulas (LC1) and (LC2) and at least one compound selected from the group consisting of compounds represented by general formulas (II-a) to (II-f).

IPC 8 full level  
**G02F 1/1368** (2006.01); **C09K 19/04** (2006.01); **C09K 19/12** (2006.01); **C09K 19/30** (2006.01); **C09K 19/32** (2006.01); **C09K 19/38** (2006.01); **C09K 19/42** (2006.01); **C09K 19/54** (2006.01); **C09K 19/56** (2006.01); **G02F 1/13** (2006.01); **G02F 1/1333** (2006.01); **G02F 1/1337** (2006.01); **G02F 1/1343** (2006.01); **G02F 1/1362** (2006.01)

CPC (source: EP KR US)  
**C09K 19/0403** (2013.01 - EP KR US); **C09K 19/3003** (2013.01 - US); **C09K 19/3066** (2013.01 - US); **C09K 19/322** (2013.01 - EP KR US); **C09K 19/56** (2013.01 - US); **G02F 1/133365** (2013.01 - US); **G02F 1/1337** (2013.01 - US); **G02F 1/13439** (2013.01 - US); **G02F 1/136286** (2013.01 - US); **G02F 1/1368** (2013.01 - EP KR US); **C09K 2019/0448** (2013.01 - EP KR US); **C09K 2019/0466** (2013.01 - EP US); **C09K 2019/122** (2013.01 - EP KR US); **C09K 2019/123** (2013.01 - EP KR US); **C09K 2019/3004** (2013.01 - EP KR US); **C09K 2019/3009** (2013.01 - EP KR US); **C09K 2019/301** (2013.01 - US); **C09K 2019/3016** (2013.01 - EP KR US); **C09K 2019/3019** (2013.01 - US); **C09K 2019/3021** (2013.01 - US); **G02F 1/133738** (2021.01 - US); **G02F 2201/121** (2013.01 - US); **G02F 2201/123** (2013.01 - US); **G02F 2202/10** (2013.01 - US)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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